London's Industrial Archæology

Sixpence

50p

LONDON'S INDUSTRIAL ARCHAEOLOGY

EARLY INDUSTRIAL RELICS

in and around London

Early London industries, with their dependence on basic materials—coal, clay, fast-running water—in their day did much to earn the whole capital its nickname of 'The Smoke'. Yet from many of the old and often crude machines which these early factories and workshops employed have sprung the ideas for modern industrial techniques.

Now, at last, the study of what has become known as Industrial Archaeology is giving these veterans of the Industrial Revolution a deserved place in history, with the seeking out and recording of buildings and mechanical devices which might otherwise have vanished. They are not just material for dedicated amateurs wielding toothbrushes; anyone with an enquiring eye can see and admire them. Some of these old buildings and machinery are still, indeed, in productive use—surely the highest tribute to their makers. This leaflet gives no more than a selection in and around London. They will form the central interest for a day out in London's country, or for an unhurried afternoon's walk into a clanking world of yesterday.

More detailed accounts of some of these industrial relics can be found in 'London's Industrial Heritage' by Aubrey Wilson, published by David and Charles, price 63/–. London Transport also gratefully acknowledges the help given by Rex *Wailes, F.S.A., F.I.Mech.E., Charles E. Lee, M.Inst.T., W. Branch Johnson, F.S.A., F.R.Hist.S., and Dr. Denis Smith, C.Eng., M.I.Mech.E.*

Upminster's Timbered Veteran and a Brixton Belle

Upminster is justly proud of its fine old smockmill which was in full daily use for flour milling until just before the First World War. Although much of its timber dates from the end of the eighteenth century, the mill itself was built between 1799 and 1801.

Now preserved by the London Borough of Havering, this is the largest complete smockmill in the eastern counties, and its windshaft which carries the sails came, in 1899, from the postmill that once stood at Maldon. The stage around the tower at first-floor level was used for loading full sacks of flour and meal on waggons and for adjusting the shutters in the patent sails by remote control, by means of a chain. Much of this very roomy mill's massive interior machinery remains in place to show us how much respect its builders had for the power of the wind. If you are interested, it is easy to arrange to inspect the building, and worthwhile it is, too.

Write in the first place, to the Town Clerk, London Borough of Havering, Romford. Please enclose a stamped addressed envelope.

Underground to Upminster; the mill is only a short distance from the station. Bus 86, 193 (not Sundays), 370.

A central London mill which has survived is at Brixton. It is a towermill originally erected in 1816, but it ceased to be worked by wind power in 1860. It stood idle for many years until purchased by the Greater London Council, who replaced the missing sails and installed the machinery from the derelict 4-sailed towermill at Burgh-le-Marsh in Lincolnshire. The mill, set in the open space of Windmill Gardens, is open at week-ends during the summer. London Transport publishes a leaflet about windmills in the London area. Write to the Public Relations Officer, 55 Broadway, S.W.1, for a copy.

Underground to Oval, then bus 59 (Suns.), 59A (Mons.-Fris.), 95 (not Suns.), 95A (Suns.), 109, 133, 159 (not Suns.), 159A (Sats.), to Blenheim Gardens, Brixton Hill.

Surrey's Early Do-It-Yourself Railway

The Surrey Iron Railway was the first public railway in the world, and its line was clearly intended as an iron way worked by members of the public using their own horses and wagons on payment of tolls, in a similar way to the canal system that had served the public in the past. The double track was laid with plate rails set on stone sleepers, and the rails were flanged to guide the wagon wheels. The line ran from Wandsworth, and experienced a surge in traffic as a result of the Napoleonic Wars. It was incorporated under an Act of 1801, and a copy of the original toll notice, dated 1804, can be seen in the grounds of Wallington Public Library. Dung was carried for 1d. per ton per mile, and 'all other manures, including lime' for 2d. a ton, in the carrier's wagons. Parts of the old railway, which was abandoned in 1846, can be seen at Merstham (outside the Jolliffe Arms Hotel), at Wallington Public Library, and less obviously in the Purley Rotary Field.

For Merstham, Green Line coach 706, 708, 709 (not Sats.), 725, or bus 59 (Suns.), 68, 109, 133 to Croydon, then bus 405, 414.

For Purley, Green Line coach 708, 709 (not Sats.), or bus 59 (Suns.), 109.

For Wallington, Green Line coach 725. Or Underground to Tooting Broadway, then bus 77 (Mons.-Fris.), 77B (Sats. & Suns.).

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Not Enough Snuff at Morden

In opulent Edwardian days, the demand for snuff (then very fashionable) created something of a problem at Morden snuff mill. The mill was worked on a shift system, grinding tobacco leaves and stalks so that not one hour's production time was lost, day or night, throughout the week, including Sundays. This mill was one of several on the river Wandle; the others dealt with tobacco, leather, flour and paper.

The snuff mill, the older of the two mills still standing, is attached to the council offices (Morden Cottage), a charming white battlemented 'gothick' house with a weatherboarded exterior. Visit the mill, now in the care of the National Trust, by Underground to Morden; walk down Aberconway Road opposite the station and go through the white gate facing you at the end. Carry on along the drive which leads to the local Council's Planning Offices.

The large cast-iron mill-wheel is original, but the paddles are replacements. The stones of the earlier mill lie across the lane opposite, at the foot of a tree.

Underground to Morden.

The 19th-Century Potteries of Holland Park

Turn right outside Holland Park Underground station, right again into Portland Road, and bear left up Pottery Lane. You are now in the heart of an area which, in Victorian days, was well-known for its yellow clay used for brick making and pottery (and also for its 'insalubrity' and its 'criminal and irreclaimable' inhabitants). Opposite you at the end of Pottery Lane stands a pottery kiln, physical evidence of the 'Potteries', as Dickens called the area. As well as tiles, the most popular local product, this surviving brick sentinel, when fired, emitted quantities of both flower pots and drain pipes.

Now retrace your steps to savour the wooded calm of Holland Park, reached by crossing Holland Park Avenue, and on by any side street. Stroll past Holland House, the Royal Borough's own country house, and you will emerge in Kensington High Street near the Commonwealth Institute. Plenty of (broadly speaking) industrial survivals here, from more primitive (but not less entertaining) worlds. *Underground to Holland Park, and from High Street Kensington.*

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Brunel's Cathedral at Paddington

The Great Western Railway was the first to describe itself as 'Great' (causing acid comment from some journalists of the time). Paddington's three 'naves' and two 'transepts', replacing the original temporary terminus opened in 1838, are physical expressions of this grandiose vision. The creators of this cathedral trainshed, Isambard Kingdom Brunel and Matthew Digby Wyatt, conceived a structure with slender iron pillars supporting every third rib of the gracefully curved and well-lit 'naves', each 700 feet long. The 'transepts', where carriages were moved on traversers from one track to another (an indication of how short Victorian carriages were), are supported by soaring diagonal cross-ribbing. Overlooking each 'transept' on Platform One are the famous oriel windows, offering the Stationmaster and his superiors an uninterrupted view of station activity.

In front of the trainshed, opened in January 1854, is the Great Western Royal Hotel, built by Philip Charles Hardwick. When it was opened in June 1854, the Hotel was the most luxurious in England. Contrasting strongly with its French Baroque architectural style is its pediment extolling the Victorian virtues of Peace, Plenty, Industry and Science. *Underground to Paddington.*

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Economy at King's Cross

Lewis Cubitt, the architect, boasted that a good station could be built at King's Cross for less than the cost of the ornamental arch, or more correctly 'propylaeum', which until recently dominated the entrance to Euston Station.

Cubitt constructed two spans, originally with wooden beams, each 105 feet wide. It has been suggested that he based his designs broadly on the Tsar's Riding Stables, then just completed in Moscow. Cubitt separated the spans by a clocktower 112 feet high (the clock, incidentally, originally stood in the Crystal Palace in Hyde Park during the 1851 Exhibition). Completing the ensemble are the offices to the left of the facade, and what was the cab drive to the right.

The Great Northern Hotel, not in any way architecturally outstanding, is entirely separate and in no way disfigures the eminently functional simplicity of the frontage, years ahead of its time when the station opened in October 1852 and which seems likely at last to have a worthy open space in front of it.

Underground to King's Cross/St. Pancras.

Beer Barrels at St. Pancras

When John Nash planned his Regent's Canal across the northernmost part of Regent's Park, he could not foresee the frenzied contortions into which this barrier was to throw the three major railway companies when they came to force their ways from the north into the new terminals of Euston, King's Cross and St. Pancras. Considerable engineering feats were involved. Trains into Euston cross the canal and then descend sharply down Camden Bank. The railway into King's Cross burrows under the Canal in a tunnel, and the Midland Railway's trains crossed the Canal so close to the terminus that St. Pancras, unavoidably, had to be 15 feet above street level.

It occurred to the designer of the trainshed at St. Pancras, W. H. Barlow, that in view of the Midland Railway's close connections with Burton, the space underneath the platforms might be used for storing beer-barrels. The length of a beer barrel had a direct influence on the spacing of the columns supporting the trainshed, and no large-diameter pillars could be included in the design. This meant that Barlow had to forego supporting pillars for his roof.

The result was a single span of 240 feet, at that time an unprecedented width. The vault, which abolished the conventional distinction between the walls and the roof, is 105 feet high at its apex, and 690 feet long. It is slightly bowed in order to relieve tension from contraction and expansion.

The outward thrust of the vault was checked by tie-beams connecting the base of each pair of ribs; these tie-beams under the platforms were also the girders forming the roof of the warehouse below.

The station was opened in October 1868. The Hotel (now offices) in front of the trainshed was finished subsequently (1873-6), with a fine disregard for its site-mate. Note the way in which the windows at the back make no concessions to the line of Barlow's arched roof. Still the generator of heated and conflicting opinions and enthusiasms, it was designed by Sir Giles Gilbert Scott who only reluctantly, and under pressure from friends, entered the competition with a design specifying two storeys more than the Midland's Directors requested. He won, nevertheless, and subsequently (and characteristically) wrote in his autobiography that the hotel was possibly 'too good for its purpose'. Fortunately we can still admire the profusion of Gothic details and the steep pinnacled towers which from a distance in the evening give an almost Wagnerian grandeur to a prosaic part of London.

Underground to King's Cross/St. Pancras.

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Tidemill at Bromley-By-Bow

Buried behind Bromley—Chaucerian 'atte Bow', not suburban south of the River—District Line station is a tidemill, a rare form of watermill. Turn right outside the station and then right again into Three Mills Lane. The buildings forming the tidemill are beyond the bridge over the River Lea Navigation and were called 'The Three Mills'. The land was given to the Monastery of Stratford Langthorne in 1135 by William de Montfichet. Three cornmills were built, but one was demolished in the reign of Edward VI when the River Lea was made navigable. Compensation was paid—the first case of compensation on record. The incoming tidal flow passed freely upstream, but the ebbing waters were held back by floodgates which were opened only when the level of the water downstream had fallen considerably. The onrushing force of the water thus released turned the wheel of the mill.

The mill became a distillery (it was first used for this purpose by Peter Lefevre, a Huguenot, in 1730) and a warehouse, and the waterwheels have now been bricked up. The sluice is, however, still visible. Go over the bridge, past the leaning octagonal clocktower on your right, and follow the path round to the left to see where the millers penned up the tidal water of the Lea.

Underground to Bromley.

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Fulling at Hertford, Mr. Caleb Hitch's Patent Bricks and Cool Spring Water

The rivers of London's country provided a ready source of power for the many watermills still found on them. In Hertfordshire alone, where the Lea, Colne and other streams produced an ample flow of water, fifty-five water mills have been recorded. Though all were, and some still are, used for corn milling, others were converted to silk throwing or paper making. The most interesting mill, however, now occupied by a firm of leather dressers, contains fulling stocks. Fulling was one of the main stages in the production of hand-made cloth, and its purpose was to beat and compress the cloth, so increasing its resistance to wear. The stocks at Horns Mill, Hertford, are now used to impregnate sheep skins with cod-liver oil to produce chamois leather. Before being fulled, the skins are sprinkled with cod-liver oil by twigs gathered from a hedge outside the mill.

Another of Hertford's industries was brewing (there is still a brewery in the town). Malting was also practised in Ware and Hertford, adjacent to large barley-growing areas, and some of the special long buildings used for malting still survive, converted to a wide number of uses, including private houses, commercial workshops and even (at King's Langley) a church hall. Hertford is still rich in fine buildings of many kinds, some handsomely faced with pargetting (ornamental plaster work, with relief or engraved patterns).

After visiting the town, it is worth taking bus 390 (*not*

Suns.) for a trip along the Beane valley to Watton-at-Stone. Alight at the stop after the village pump, cross a lane named Great Innings, and turn right. Astride the Walkern Road you will find a two-arch bridge built with Hitch's Patent Bricks—an aid to bricklayers devised in 1828 by Caleb Hitch the younger, of Ware. The bricks were larger than average (measuring 12″ × 6″ × 6″), and they had cleverly-interlocking flanges to economize on mortar and increase structural strength. Mr. Hitch's unwieldy bricks must have proved difficult to handle and lay, and it is hardly surprising that the Watton bridge is one of the last surviving structures where they can be seen. Repairs to the bridge have been carried out over the larger courses with ordinary bricks. From Watton, you can travel on by bus 390 to Stevenage for Green Line coach 716 or 716A to London.

If you decide to visit Ware, Hertford's neighbouring town, on your way back to London, leave Hertford by the path along the River Lea. After a mile you come to the New Gauge, constructed in 1856, where 22½ million gallons of water daily are diverted into the New River for Londoners' use.

The man behind the New River was Sir Hugh Myddelton, who, in James I's reign, constructed the 'River', in a channel 40 miles long, to Clerkenwell. Nowadays, the river flows into huge reservoirs in Green Lanes near Manor House Underground station. So closely does the river hug the contours of the ground that nowhere does it fall more than two or three inches a mile. When the river first flowed in 1613, its sources were the springs at Great Amwell (south of Ware) and Chadwell, the latter marked by a solitary white building ahead of you to your right below the hillside. The channel cut to the River Lea was intended to supplement the spring water when the Chadwell spring began to flag. There is a monument to Sir Hugh Myddelton on a pretty island near Great Amwell church.

Continue on to Ware, home of Caleb Hitch and other brickmakers, but also described as the cradle of the malting industry in Britain. Indeed, in the 17th century, turnpikes were first introduced because of the damage inflicted on eastern counties roads by heavy waggons bringing barley to Ware for the maltsters, who numbered about 80 in 1880. Ware also abounds in timber-framed and gabled houses; stroll around the town before you take the Green Line back to London.

Green Line coach 715.

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To Greenwich via the Isle of Dogs

When London's first man-made Docks (the West India Docks) were excavated in 1802 across the huge U-shaped bend of the Thames around the Isle of Dogs, the warehouses along the north quay of the Import Dock, for such cargoes as unrefined sugar, formed the longest continuous frontage in Europe. Now, after the ravages of wartime bombing, only 600 feet of the original 2,800-foot-long facade survive, but this building is still the Port of London's largest warehouse.

Take the Underground (Central or District Lines) to Mile End, and then bus 277 from Burdett Road. Alight in West India Dock Road, and go under the bridge to the Dock Gates where you have in front of you William Jessop's mammoth creation.

Retracing your steps and turning right into Poplar High Street, you now follow (on your right) what used to be the London and Blackwall cable railway, opened in 1840. The system of train-working on this line was extremely ingenious. There were two tracks each providing a 30-minute cycle of operation, i.e. a regular 15-minute service: the coaches standing at the terminus would run by gravity from London (Fenchurch Street) or Blackwall as far as the stationary engines at the Minories (Aldgate) and Poplar where the cables were attached. One coach would be 'slipped' at each of the intermediate stations. At the end of the line, the remaining coaches completed the journey by their own momentum. To re-form the train at the original terminus, the carriages were, at a signal sent by the new-fangled electric telegraph, re-gripped to a cable trailed by the outward train, and hauled back singly. Turning right at the end of the High Street, past the entrances to the Blackwall Tunnel (to the left, below you) into Blackwall Way, you cross the railway. A small rectangular red-brick building survives in the cutting on the west side of the bridge, and the patterned ironwork of the glassless windows is particularly attractive.

Continuing down Blackwall Lane, you turn into Prestons Road. Crossing the brand new road bridge over the South Dock entrance, fork right into East Ferry Road. A short walk will take you, on the right, to the foot of an overhead pedestrian walkway over the Millwall Docks (1868). A lift saves you the climb to the imposing ¼-mile-long, fully-enclosed bridge. The central section of the bridge can be turned to allow the passage of ships below. At this central point, you have a superb elevated view of the Inner and Outer Millwall Docks, L-shaped, including to the left, on the outside corner of the 'L', the first Dry Dock built away from the riverside.

From here, you can continue across the bridge, and down by the lift (noting the detailed map of the Millwall Docks at ground level). A short walk along Tiller Road will take you to West Ferry Road for bus 277 to Mile End.

But if time allows, return to and down the first lift and go on along East Ferry Road. Turn left and then right to reach Island Gardens, where one of London's finest, yet most neglected, views reveals the naval splendours of Wren's Greenwich. Having whetted your appetite, take the lift, downwards this time, to the echoing subway which takes you deep below the Thames to bring you out smartly alongside 'Cutty Sark' and her diminutive neighbour 'Gipsy Moth IV'.

A free London Transport leaflet, *A Day at Greenwich*, will guide you to and around the sights before you take the bus back to London. *Bus 1A (Suns.), 70 (Mons.-Fris.), 163 (Mons.-Fris.), 171A (Suns.), 177 (Mons.-Fris.), 188 (not Suns.), 188A (Suns.).*

Big Wheel on the Wandle

The 18th century was the heyday of a flourishing South London textile industry for which the River Wandle, between Croydon and Wandsworth, provided the power

At Merton, especially, calico bleachers and printers proliferated, and on the site of the priory of Merton Abbey stood a calico manufactory which later printed silks for one Arthur Liberty, who managed the Eastern Department of a shop in Regent Street. Liberty was an aesthetic ally of William Morris, although (unlike Morris) he saw a bright future for machines in the service of Applied Art. He became an enthusiastic reviver of ancient dyeing methods, and took over the Merton Factory in 1885, together with a large waterwheel with iron hubs and spokes, and wooden paddles on a timber spindle. This massive affair was operative up to about twenty years ago, but when the River Wandle was lowered in 1960, it was never expected to turn again. However, during floods in 1966, a brief hour of glory came. The water level rose and whipped the wheel into such activity that it threatened to demolish its 18th-century brick building. Only with the greatest difficulty was the runaway veteran pacified.

The premises are the property of Merton Fabric Printers who are part of the Liberty 'empire'. The firm will willingly show the wheel to the interested visitor. It can be seen rather distantly from the lane which runs along the factory boundary.

Underground to Collier's Wood. Walk along Christchurch Road, cross the railway, turn right into Runnymede and right again into Littlers Close. The factory is situated a short way down on the left.

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By the Wey, and on the Tillingbourne

Treat yourself to a pleasant ride by Green Line coach 715 direct to Guildford. Here, on the far bank of the River Wey, opposite the Bus Station where you leave the coach, is an unusual apparatus, a treadmill crane. In the wooden shed, there is a hollow, vertically mounted wheel once operated by men inside it walking furiously but getting nowhere. Their efforts enabled goods either to be brought ashore from, or loaded on to, boats moored at the quayside. The treadmill is owned by the National Trust and is to be restored by Guildford Corporation. There will be a riverside walk which will allow access to and close inspection of this rare mechanism.

Also owned by the National Trust and by contrast in a very fine state of repair is the watermill at Shalford. Take bus 425 from Guildford or stroll along the riverside path. A short distance past the church, take the lane to the left. Where the lane ends, there is a pretty 18th-century mill and mill house, standing astride the River Tillingbourne and open daily. If you have any difficulty apply to the residents of the mill next door. The mill has three spacious floors, and the wooden mechanisms, from the hefty central pinion to the gearing which once turned the stones to grind the flour, are impressive for their sturdy utility and for the beauty of workmanship.

The wooded valley of the River Tillingbourne was once a centre for a thriving iron foundry industry. The village of Abinger Hammer, a little further along the 425 bus route, is an echo from this industrial past. The Hammer Ponds there were sources of power to work the bellows of the foundry furnaces.

The sole survivor of this former age is the figure of a blacksmith on the projecting village clock; watch as his hands move in jerky precision to mark the hour.

Green Line coach 715 to Guildford. From Abinger Hammer, bus 425 will either take you back to Guildford for Green Line coach 715, or on to Dorking for coach 712, 713 or 714.

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High over the Brent and Down the Stairs of The Grand Union

Take the Central or District Line to Ealing Broadway, and then bus 207, 207A (*not Suns.*) from The Mall to Hanwell Bridge. If you stand on the bridge, you have a fine view of one of London's most imposing viaducts, striding across the River Brent in eight finely arched steps. Built in brick in 1836/7, the original structure has since been widened on the north side. Across Brent Meadow, you can approach the south side, emblazoned at the top of the centre pier with Lord Wharncliffe's coat of arms; alternatively, walk along Halfacre Road and through the pretty sunken garden (or skirt to the left round the garden by a path which offers a splendid oblique view of the viaduct). Noting the Great Western Railway sign about rights of way (recently repainted in a staunchly preservationist spirit), go under the bridge to the grassy open parkland beside the river, where the only sound is the occasionally muffled roar of a diesel train on the main line high above you.

Return to the Uxbridge Road and turn right, continuing over Hanwell Bridge as far as the Iron Bridge, where the railway crosses the main road. Turn left down Windmill Lane, passing on the right the A.E.C. Factory, where generations of London's buses have first seen the light of day. You soon reach one of London's curiosities, the Three Bridges. The road crosses the Grand Union Canal at precisely the same point where the canal crosses a railway branch line. The canal was opened in 1800, and the railway line in 1859. Descend one level to the canal, and walk along the towpath to the largest flight of locks in the London area, six in a single staircase. Here, if you're lucky, you can watch a lot of effort going a little way. Then carry on down Windmill Lane to Osterley Park and House. Originally built for the founder of Royal Exchange, Sir Thomas Gresham, in 1579, Osterley House was bought by Francis Child, the banker, in 1711. Fifty years later, his grandson, similarly named, commissioned Robert Adam to reconstruct the house, giving the architect a completely free hand. The Park, with its woodland and lakes, is a fit setting for the House.

Underground to Ealing Broadway. Return by Underground, or by Green Line coach 704, 705, from Osterley.

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Marc Brunel makes London Transport's First Thames Tunnel

In 1818, the French engineer, Marc Brunel, patented a tunnelling shield consisting of 12 massive cast-iron frames which together formed a rectangular box divided up into 36 compartments. Working in each of these compartments, the miners dug out the spoil, while behind them bricklayers lined the tunnel. When the spoil had been removed, the shield was pushed forward by jacks thrusting against the newly-laid brickwork.

Brunel and his brilliant son, Isambard Kingdom, who was appointed engineer-in-charge in 1826 at the age of 20, wrestled with problems created by inaccurate geological soundings, regular inundations from the Thames and commercial pressures, to complete the world's first tunnel for public traffic under a river. The Thames Tunnel was finally opened in 1843: intended as a road tunnel from Wapping to Rotherhithe, it suffered the ignominy of being a pedestrian tunnel-cum-fairground until 1869, when it was converted to railway operation.

The linings of the working shafts were constructed above ground—great cylinders of brickwork, 50 feet in diameter and 42 feet high. Braced by iron tie-rods secured to cast-iron rings, the shafts were sunk, six inches a day, into the ground. At Wapping today, you descend to the platforms, by lift or staircase, through one of these shafts. At its foot, the twin tunnels slope away through the blackened Grecian-style entrance to Marc Brunel's finest engineering achievement.

At Rotherhithe, walk along Railway Avenue behind the Underground station and on your left you can just see the top of the other working shaft, now a pumping station.

It is worth walking a few yards past the shaft into Rotherhithe Street where, turning left, you will find the pretty 'Mayflower' inn, which dates back to the middle of the 16th century. The 'Mayflower' proudly displays a sign declaring its right to sell postage stamps (handy for sailors), and also its milestone showing the distance from

London Bridge (two miles). A little further on, St. Mary's Church is notable for its reredos (attributed to Grinling Gibbons); its four columns (which are tree trunks surrounded by plaster castings); the finely-sculptured relief of a frigate in full sail to the left of the altar commemorating Anthony Wood, captain of the 'Mayflower', the Pilgrim Fathers' ship; and for what is claimed to be the oldest complete organ in London. On the opposite side of the road is Peter Hill's School, with its delightful statues of an 18th-century schoolboy and schoolgirl perched on the first floor balcony.

A short walk takes you back either to Rotherhithe Underground station or to Jamaica Road for your bus back.

Bus 47, 70 (Mons.-Fris.), 188 (not Suns.), 188A (Suns.).

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By Viaduct and Boulevard to Deptford

From February, 1836, Londoners were at last able to savour the sooty exhilaration of steam-hauled railway travel. The line, known as the London and Greenwich, was constructed by a former army engineer, Colonel Landmann, to give a more direct and speedier route than the Thames provided. Initially, however, the line ran only between Spa Road in Bermondsey and Deptford. Not until December, 1836, did it reach London Bridge, and two years elapsed before trains crossed Deptford Creek, on a movable bridge, to reach Greenwich.

The route was encumbered by streets and waterdykes, and another obstacle was the Surrey Canal. Landmann's solution was a viaduct of 878 brick arches flanked by tree-lined boulevards for those who could only afford to walk (at a penny a time) rather than ride (minimum fare, 6d.). The boulevards also gave access to the arches, in which Landmann envisaged an elongated housing estate. The estate did not, however, materialize, so the arches were, and still are, put to commercial use (including until very recently a public house where the bar increased in length every time extra tracks were added overhead!).

Some of London's oldest trades are still thriving underneath the arches: there is a cooper in Jarrow Road, Southwark, and a blacksmith in the station yard at Deptford. On the other side of Deptford High Street, Mechanics' Passage is the home of a profusion of Steptoe horses and carts. Some of the carts are sadly derelict.

The boulevards were eroded by widenings of the viaduct, but it is still possible to walk to Deptford alongside the railway. Take the Underground to London Bridge and then bus 47 or 70 (or walk via Tooley Street and Druid Street) to Abbey Street. Here you can admire Landmann's bold Doric pillars supporting the original section of the viaduct; there are similar pillars at Spa Road bridge further south. Along Priter Way is the entrance to Spa Road station, closed in 1915. When opened, however, the station was the nearest to central London. Beyond this point is a fine triple-arched bridge. At Trundleys Road, turn right over the canal and left along Rolt Street under the bridges before re-joining your route parallel to the railway line to Deptford.

Bus 1 (not Suns.), 47 will take you back to London from Deptford station.

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Winched up at St. Paul's

Intrepid mountaineers who are determined to conquer the peak at St. Paul's Cathedral might care to pause awhile to examine the curious obstacle which has to be circumvented before they finally scale the steps to the Golden Ball. It is unusual enough to find a piece of 19th-century construction equipment in London, but to come across a wooden winch of that period almost at the top of St. Paul's is even more intriguing, especially as it is unclear both what it was needed for and why it has survived on site. The wooden drum is still in excellent condition and the gear mechanism would function now as well as ever it did when, perhaps, it was used to haul up the railings of the Golden Gallery.

After the heady climb to the Ball, descend to the peaceful calm of the Crypt to see the grave of the Cathedral's architect, Sir Christopher Wren. If you seek his monument, look around you; but also all around you are memorials to Britain's illustrious. John Rennie, the Industrial Revolution's brilliant civil engineer, and Britain's two finest artists, Turner and Constable, are laid to rest here. Nelson's body is preserved in spirit inside a marble sarcophagus carved for Cardinal Wolsey and subsequently intended for Henry VIII. Neither was ever laid to rest inside, however, and Nelson's remains now occupy this historic urn in a tomb constructed from the mainmast of the French flagship 'L'Orient'. The Duke of Wellington's body was interred in the massive tomb of Cornish porphyry on a granite base. Even more imposing at the west end of the Crypt is the awe-inspiring Funeral Car, 18 tons in weight and cast partly from cannon captured at Waterloo, on which the Iron Duke's body was brought to St. Paul's from Chelsea in 1852.

Underground to St. Paul's.

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VISITOR'S LIBRARY

Visitor's London

London Transport's official guide to places of interest in London and its countryside, in alphabetical order with illustrations. More than 265,000 copies sold. Price 5/–

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